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22850 7590 05/06/2010 OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, L.L.P. 1940 DUKE STREET ALEXANDRIA, VA 22314				
EXAMINER REDDY, KARUNA P				
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

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***Attachment to Advisory Action***

***Response to Arguments***

1. Applicant's arguments filed 4/27/2010 have been fully considered but they are not persuasive. Specifically, applicant argues that (A) examiner's statement that support only exists for "free radically polymerizable double bonds" and not the broad "unsaturated group" is taken out of context. Specifically, the recitation is in conjunction with a Markush listing and there is reference to "ethylenically unsaturated" (emphasis added by applicant) in the originally filed disclosure; (B) originally filed disclosure states "polycarboxylic acids are unsaturated C<sub>4</sub> to C<sub>36</sub> dicarboxylic acid"; (C) general thrust of applicant's argument with respect to Arkens et al is that the polymeric polyacid of Arkens does not contain at least one free-radically polymerizable unsaturated group recited in the Markush listing of instant claims; (D) Rockrath does not impregnate or coat granules, rather instructs that its coatings are polymerized to form hard, glossy, scratch resistant finishes; (E) Rockrath's thermally curable coatings comprise a thermally curable composition comprising an unsaturated polysiloxane macromonomer. However, thermally curable does not mean thermally polymerizable via free-radically polymerizable unsaturated groups; (F) Rockrath's table at col. 8, does not suggest that functional groups (a1) and (b1) may be polymerizable unsaturated groups. Rather the functional groups (a1) and (b1) appear to be complimentary crosslinkable groups; (G) Rockrath instructs persons of ordinary skill to cure the copolymerized binder by crosslinking its functional groups with the functional groups of another added crosslinking agent, while the applicant's claimed process does not employ a crosslinking agent and does not involve crosslinking; (H) Rockrath teaches away from polymerization

temperatures required for thermal polymerization; and (I) Rockrath expressly states that the binders may contain the polysiloxane macromonomers in copolymerized form in widely varying amounts. Rockrath's methods for preparing polyacrylate demonstrate that Rockrath's binder contains copolymerized polysiloxane macromonomer and as such does not contain unpolymerized polysiloxane macromonomer having a polymerizable content of free-radically polymerizable unsaturated groups.

With respect to (A), to put the statement in context, examiner includes the recitation below -

"the multifunctional macromonomer has a polymerizable content of at least one free-radically polymerizable unsaturated group selected from the group consisting of an acrylate group, a methacrylate group, a maleate group, a vinyl ether group, a vinyl group, and an allyl group."

Firstly, applicant's attention is drawn to "at least one .... selected from". Hence, it is the examiner's position that instant claims require at least one of the free-radically polymerizable unsaturated groups recited (i.e. containing a double bond based on the Markush listing) and is open to other unrecited free-radically polymerizable unsaturated group. Secondly, applicant's reference to "ethylenically unsaturated" suggesting that the term "unsaturated" is disclosed originally is not persuasive, because the recitation is in the context of "ethylenically unsaturated" which refers once again to the "double bond" whereas the broad "unsaturated group" can include for e.g., acetylenic unsaturation which is a triple bond.

With respect to (B), instant claims recite "free-radically polymerizable unsaturated group". However, reference to polycarboxylic acids is in relation to condensation (page

3, lines 23-27)) and not free radical polymerization. In addition, the examples of polycarboxylic acids (i.e. sebacic acid, succinic acid and others) disclosed (page 3, lines 31-33) do not undergo free radical polymerization.

With respect to (C), examiner agrees that such a free-radically polymerizable unsaturated group is not present in the polyacid of Arkens. However, Graham v. Deere analysis was done and motivation to use the prepolymer of Arkens et al prior to full polymerization was articulated with clarity in the rejection set forth in paragraph 4 of office action mailed 1/27/2010.

With respect to (D), as stated earlier, applicant's attention is drawn to Rockrath et al (col. 19, lines 33-40) wherein it states that composition of Rockrath can be applied to granular and fibrous substrates such as wood, leather, building material and rock wool. Instant claims only require that the granular or fibrous substrate be coated or impregnated.

With respect to (E), applicant's attention is drawn to Rockrath's wherein it states that polymerization occurs at 100 to 160°C (col. 10, lines 64-65) and higher crosslinking temperatures may be employed which include temperatures of from 100°C to 180°C (col. 8, lines 66-67). Hence, it is clear that Rockrath deals with both thermal polymerization and thermal crosslinking.

With respect to (F), as stated earlier, applicant's attention is drawn to functional groups (Table 8)  $\text{--O--CR=CH}_2$ ,  $\text{--O--C(O)--CR=CH}_2$ , and  $\text{--CH=CH}_2$  all of which contain polymerizable unsaturated double bonds.

With respect to (G), applicant's attention is drawn to Rockrath wherein it teaches both thermal polymerization ((col. 10, lines 64-65) and thermal crosslinking (col. 8, lines 66-67). Now applicant's attention is drawn to instant claims 15 and 16, wherein the reaction product formed from acid and hydroxy containing monomers is further reacted with epoxy and isocyanate. Hence, it is clear that instant claims also employ reagents which undergo crosslinking reactions with functional groups on the multifunctional macromonomer (i.e. reaction product of claim 15 contains carboxylic acid and hydroxy functional groups, which are further reacted with complimentary functional groups such as epoxy and isocyanate).

With respect to (H), firstly, independent claim 10 does not require a specific temperature for polymerization. Secondly, temperatures utilized in Rockrath overlaps with the instantly claimed temperature of 180 to 220°C.

With respect to (I), applicant's attention is drawn to Rockrath wherein it uses the term "may" to describe polysiloxane macromonomers in copolymerized form. Secondly, as stated earlier, Rockrath et al (col. 7, lines 59-66) states - owing to the high functionality of on average more than 3.0 double bonds per molecule, a fraction of up to 5% by weight based in each case on the binder is sufficient. In addition, crosslinking agent added (for curing), to the binder containing multifunctional macromonomer, also contain double bonds in  $-\text{O}-\text{CR}=\text{CH}_2$ ,  $-\text{O}-\text{C}(\text{O})-\text{CR}=\text{CH}_2$ , and  $-\text{CH}=\text{CH}_2$ . Hence, it is the examiner's position that multifunctional macromonomer of Rockrath indeed contains polymerizable content of at least one free-radically polymerizable unsaturated group.

/K. P. R./

Examiner, Art Unit 1796

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